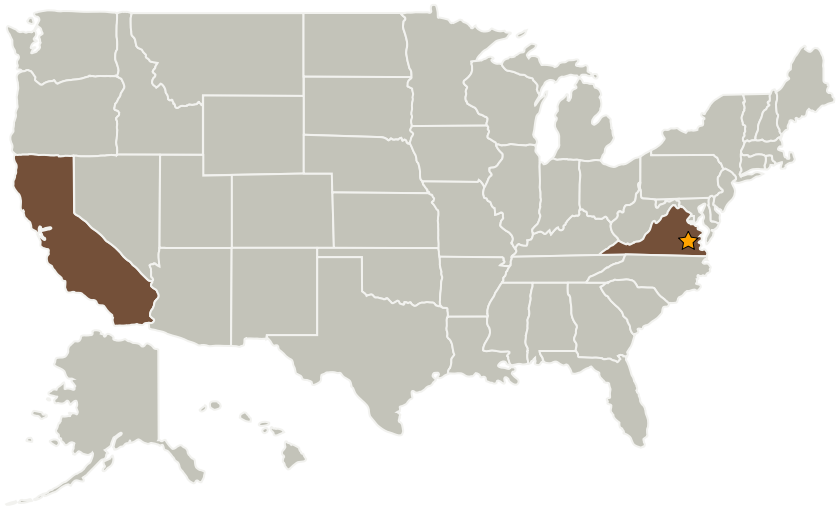
A Laser-Based Diagnostic Suite for Hypersonic Test Facilities, Phase I

Completed Technology Project (2007 - 2007)

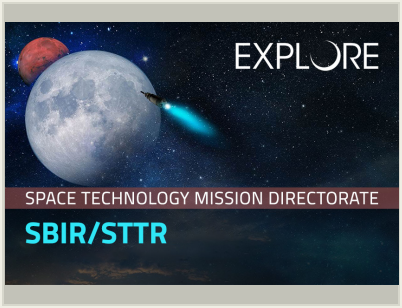
Project Introduction

In this SBIR effort, Los Gatos Research (LGR) proposes to develop a suite of laser-based diagnostics for the study of reactive and non-reactive hypersonic flows. These sensors will include both in situ and line-of-sight measurements of several critical parameters including gas temperature, velocity, and composition. Both established near-infrared and emerging mid-infrared laser sources will be utilized to make highly-accurate measurements via tunable diode laser absorption spectrometry. The SBIR instrument will be the first system capable of providing real-time, rapid quantification of these important combustion parameters in NASA's hypersonic wind tunnels. Such quantification is essential to the development of improved reactive CFD models and subsequent hypersonic propulsion systems for future aerospace vehicles.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Los Gatos Research	Supporting Organization	Industry	Mountain View, California



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.1 Aeroassist and Atmospheric Entry
    - TX09.1.2 Hypersonic Decelerators